

1 1. A method comprising:
2 protecting a polysilicon gate structure with a
3 mask to prevent the formation of a silicide on the gate
4 structure.

1 2. The method of claim 1 including protecting a
2 polysilicon gate structure with a hard mask to prevent the
3 formation of a silicide.

1 3. The method of claim 2 including protecting the
2 polysilicon gate structure with a nitride hard mask to
3 prevent the formation of a silicide.

1 4. The method of claim 1 including selectively
2 protecting at least one polysilicon gate structure with a
3 mask to prevent the formation of a silicide and removing
4 the mask over other gate structure to form a silicide on
5 the other gate structure.

1 5. The method of claim 1 including removing said
2 mask after forming a silicide.

1 6. The method of claim 5 including removing said
2 mask by etching.

1 7. The method of claim 5 including removing said
2 mask by polishing.

1 8. The method of claim 5, including polishing said
2 mask then etching said mask.

1 9. The method of claim 1 including replacing the
2 polysilicon gate structure with a metal gate replacement.

1 10. The method of claim 1 including forming the
2 polysilicon gate structure including a patterned
3 polysilicon portion and an underlying dielectric layer.

1 11. The method of claim 10 including protecting the
2 underlying dielectric layer from overetching.

1 12. The method of claim 1 including forming spacers
2 on either side of said polysilicon gate structure to
3 prevent lateral silicide formation.

1 13. The method of claim 5 including using a two-step
2 polish to remove said mask including a first step using a
3 harder pad and a second step using a softer pad.

1 14. A method comprising:
2 selectively preventing the formation of a
3 silicide on one polysilicon gate structure and forming a
4 silicide on another gate structure.

1 15. The method of claim 14 including replacing the
2 polysilicon gate structure without silicide with a metal
3 gate replacement.

1 16. The method of claim 15 including preventing the
2 formation of silicide by masking the polysilicon gate
3 structure to be replaced with metal.

1 17. The method of claim 16 including protecting a
2 polysilicon gate structure with a hard mask to prevent the
3 formation of a silicide.

1 18. The method of claim 17 including protecting the
2 polysilicon gate structure with a nitride hard mask to
3 prevent the formation of a silicide.

1 19. The method of claim 14 including removing said
2 mask after forming a silicide.

1 20. A semiconductor wafer comprising:
2 a semiconductor substrate;
3 a first polysilicon gate structure formed over
4 said semiconductor substrate;
5 a second polysilicon gate structure formed over
6 said semiconductor substrate; and
7 a mask over said first polysilicon gate structure
8 and said second polysilicon gate structure being maskless.

1 21. The wafer of claim 20 wherein said mask is a hard
2 mask.

1 22. The wafer of claim 21 wherein said mask is a
2 nitride hard mask.

1 23. The wafer of claim 20 including a dielectric
2 layer between said gate structures and said semiconductor
3 substrate.

1 24. The structure of claim 20 wherein said second
2 gate structure has silicide formed thereon and said first
3 gate structure is substantially free of silicide.